

3C7133	Roll No. _____	Total No. of Pages : 2
	3C7133	
MCA. III Semester (Main & Back) Examination, Dec. - 2018 MCA - 303A Computer Graphics		

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 32

Instructions to Candidates:

Attempt All questions.

Marks of questions are indicated against each question.

1. Answer each of the following questions in one line : (10×1=10)
- i) What is PHIGS?
 - ii) Define Raster Graphics.
 - iii) What are the attributes of a line?
 - iv) Define Gray scale.
 - v) What are color - tables?
 - vi) What is Inverse Transformation?
 - vii) What is center of Projection?
 - viii) Define surface rendering.
 - ix) Write 3D matrix for translation and scaling.
 - x) What is Morphing?
2. Answer each of the following questions in not more than 50 words : (5×3=15)
- i) Discuss the DDA line drawing algorithm and what are its limitations?
 - ii) What is the symmetry of a circle?
 - iii) Write 3D Matrices for Rotation.

iv) What do you understand by window to viewport mapping? Give the viewing pipeline as well.

v) What are Bezier curves and B-spline curves?

3. Answer each of the following questions in not more than 150 words. (5×4=20)

i) Consider a line from (0,0) to (-8,-4), use Bresenham's line Drawing algorithm to calculate its pixel positions. <http://www.rtuonline.com>

ii) Discuss scan line polygon fill algorithm and flood fill algorithm.

iii) A triangle ABC formed with vertices A (4,1), B (5,2), C (4,3) is rotated by 30°. Calculate its final coordinates.

iv) Discuss in detail parallel projections and their properties.

v) How are animation sequences designed?

4. How are decision parameters calculated in midpoint circle drawing algorithm? Also calculate the pixel values of a circle with radius 10, centered at (100,50). (20)

5. A rectangular clipping window is defined by the following window coordinates : (0,0) for the left, bottom corner and (5,4) for right top corner. Two line segments : Line AB (from A (-1,-1) to B (6,6)) and Line CD (from C(-1,1) to D(4,-3)) are given to clip against the window using Cohen - Sutherland clipping algorithm. What is the sequence of bitcodes generated by the algorithm and mention the final results after clipping. (15)

OR

5. Write short notes on (any 3) :

(3×5=15)

i) Character Generation.

ii) Fill Attributes.

iii) Composite 2D Rotations being additive.

iv) Z buffer algorithm.

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